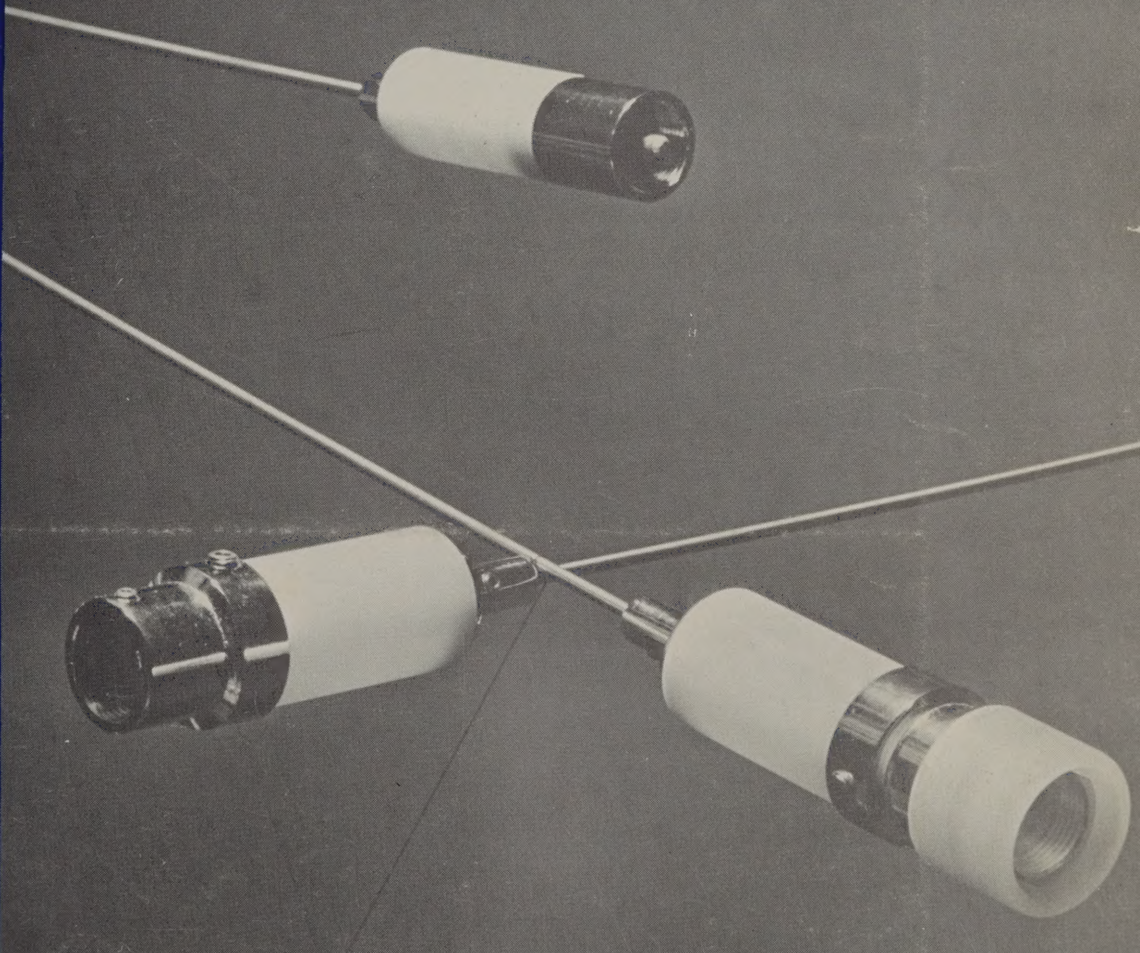
DECEMBER 1962
40 CENTS

Communication HORIZONS



ASP-350

(30-50 Mc)*

the antenna specialists brand base antenna

Wind, rain, hail or snowstorms, the rigid aluminum and cadmium steel built ASP-350 bows to none.

This ½ WAVELENGTH END-FED antenna provides a *heavy-duty,* vertically polarized omni-directional base station. The actual operating gain is 6 db OVER any single element type antenna in its class. It's adjustable through the frequency band specified and can be tuned easily to operating frequency in the field.

The noise pickup is VERY low with a signal pattern that is intensified by the low radiating angle.

Inconspicuous and sleek looking too! Simple to install on mast, side or eave mounts. It's waterproof and has direct ground for lightning protection.

For all-weather dependability at low-cost, the ASP-350 has proven itself to be the best. *Also in 40-50 Mc (ASPA 350).

"Stripes of Quality" ®

For complete information, see your local electronic parts supplier or write for specifications to

the antenna specialists co.

12435 Euclid Avenue Cleveland 6, Ohio
Export Div., 15 Moore St., New York 4 N.Y.

AND WHAT'S HAPPENING WITH YOU THESE DAYS?

For months now, we here at COMMUNICATION HORIZONS have been telling you what we are up to. Now, we'd like to know what's going on in **your** shop. What are your current problems? What tricky jobs have you accomplished lately? **What's new?**

We ask this for two reasons. One, if you tell us what **you** are doing then we will be able to better serve you by bringing you the information you need. And two, **your** activities, problems, and accomplishments may be news in themselves, helping other people in the industry.

To make it easy for you, we've prepared the card below. Just fill in any of the blanks which may be appropriate, drop it in an envelope, and airmail it to Communication Horizons, P. O. Box 1557, Oklahoma City 1, Oklahoma. Today is the day to do it!

Communication report for the period ______________ to ______________.

New personnel in period: ______________

New test equipment installed: ______________

New antennas installed: ______________

New mobile units installed: ______________

New base stations installed: ______________

New repeaters installed: ______________

New systems installed: ______________

Current problems: ______________

Plans for next 30 days: ______________

From: Firm: ______________

Location: ______________

Signed: ______________

Date: ______________

NEWS . . . on many fronts of the non-broadcast industry!

During the coming months, the non-broadcast radio industry is expecting to make news on many fronts. Not the least of these is the action to achieve an additional 240 channels of spectrum space by requesting reallocation of UHF TV channels 14 and 15. Technically, too, a number of newsbreaks are being anticipated.

Whatever the event — either technical or administrative — you can count on coverage in depth by the CH team. Washington Bureau Chief Bob Tall, Public Safety Contributing Editor Robert Brooking, Service Editor Kay Reed, and the rest of us here in the main office work around the clock with a single purpose in mind — to keep YOU informed of the latest events in the communication world.

But to keep informed, you must act as well. All our work goes for naught if you don't get an opportunity to read the result. And the way to make sure you have this opportunity is to make sure, today, that you're on our list of subscribers. Are you there? If not, turn the page, fill out the form, and airmail it right now. Speed pays! And then, for the next 12 to 15 months depending on how fast you act, you'll have all of us working for you — and you'll keep up with the news in COMMUNICATION HORIZONS.

YES - ENTER MY SUBSCRIPTION TODAY

for.................16 issues of Communications Horizons at the special price of $4.00. **I am mailing this form before December 1, 1962.**

.................15 issues of Communication Horizons at the special price of $4.00. **I am mailing this form before December 8, 1962.**

.................14 issues of Communication Horizons at the special price of $4.00. **I am mailing this form before December 15, 1962.**

.................13 issues of Communication Horizons at the special price of $4.00. **I am mailing this form before December 20, 1962.**

.................12 issues of Communication Horizons, $4.00. **I am mailing this form after December 20, 1962.**

Name ....

Radio Call Sign ....

Address ....

City/Town.. **Zone**.......... **State**..

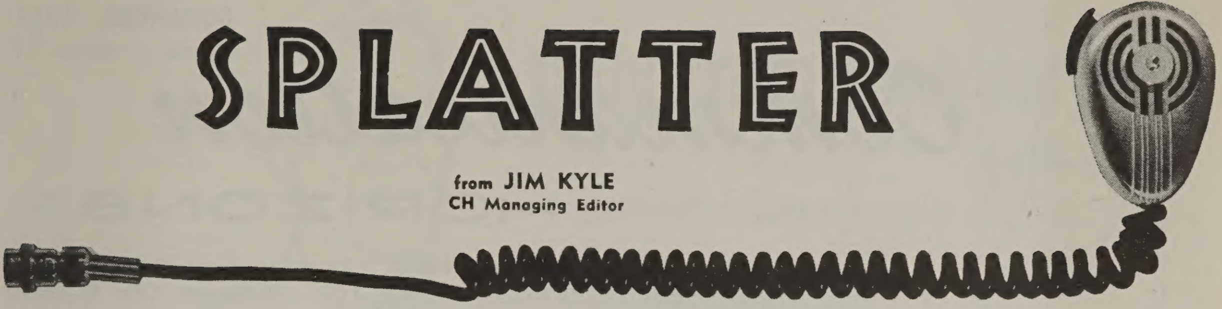
Airmail today to:

COMMUNICATION HORIZONS

P. O. Box 1557

Oklahoma City, Oklahoma

SPLATTER



from **JIM KYLE**
CH Managing Editor

As this is written, efforts are continuing to unify the nation's land mobile radio services behind the EIA Land Mobile Communications Section drive to have UHF TV channels 14 and 15 reallocated for land mobile use.

One of the leaders in this drive is William J. Weisz, chairman of the EIA section and a vice president of Motorola. He has declared the mobile radio frequency congestion problem "is fast becoming a national catastrophe" and has asked all users to become "walking, talking, writing fighters" for the "cause" of frequency relief.

So what are *you* doing in this effort?

This office, like virtually all other media which might have some influence on "public opinion" (whatever that is), has been receiving regular press releases from the EIA section dealing with the move.

But all this work at the top will go for nothing unless we all — from top to bottom — support it.

This office does not elect Congressmen (at most, we have only a few votes — not enough by ourselves to influence any election). Nor does any other publication in the field.

We as editors and publishers have precious little influence over any federal action.

But the entire non-broadcast industry, working together, *does* swing a powerful weight. If every user of two-way were to write his Congressman, there's no doubt that the Congressman would become interested in the question.

And with enough members of Congress — who control the appropriations which in turn pay the salaries of all FCC personnel from the top down — interested in any matter, action results!

If you don't believe this, take another look at the TV industry; the record is clear in that instance. To get the authority to require all-channel TV sets, the Commission had to deal with Congress — and the FCC was forced to abandon its de-intermixture program.

The kicker, of course, is that such a program works best if every user of two-way becomes involved — and this is not likely to happen. It can *never* happen unless you do *your* part.

Who else knows every one of your customers?

What wholesale mailing list can reach every person who helps support your own business?

And even if someone else *could* reach them. what chance would this mythical "other person" have of gaining your customer's interest?

Maybe you "don't have time" to seek out your users and brief them on this matter. Do you have time to stay in business?

Actually, it doesn't take very much time. All you really need to do is to get them interested. Next time someone comes into your shop for service on a mobile unit, or on your next maintenance call to a base station, drop the "frequency squeeze" subject into the conversation. Tell him of the problem (if he doesn't already know from personal experience). And tell him about the solution the EIA section has proposed and which is being studied right now by the FCC.

Just a little bit of "talking it up" can stir an awful lot of interest at the user level — and *that's* where it counts the most.

You can be sure the television stations will get into the act, attempting to rouse the viewers to do their part *against* this move. One of the basic practical rules of radio is "never surrender any frequency without a fight — some day you're likely to need it", and this is just as true of broadcasting as it is of any other radio service!

The TV industry is blessed with what many people believe is the most effective shaper of public opinion in existence today. The only thing which can overcome this force is personal contact—and the only people who can bring about this personal contact are you, the people who already *have* this contact with the two-way users.

Are you doing your part? Or had you rather keep on trying to make do with what we already have?

Several months ago, in these columns, we mentioned the upcoming 13th National Conference of the I. R. E. Professional Group on Vehicular Communications, to be held December 6 and 7 at Disneyland, Calif.

The program is fairly well complete now, and there's still time to make your plans for attendance — but not much time!

Specialized papers covering 18 topics are already on the schedule, and some 40 exhibits are planned. On display will be the latest base and

(Turn to Page 19)

DECEMBER, 1962
Volume 2, Number 12

Communication HORIZONS

and "Two-Way Radio Digest" Published Monthly by
HORIZONS PUBLICATIONS, P.O. BOX 1557, Oklahoma City 1, Okla.

CONTENTS

Sy-Pep Paper	**4**	Mobile Relay for Manufacturers Radio
Shop Talk	**8**	Servicing Pocket Radios
Service Profile	**9**	100 Years in St. Louis for New Shop
Public Safety	**10**	Progress Report
Bob Tall Reports	**16**	Our Man in Washington

DEPARTMENTS

1 Splatter
12 CH Showcase
14 Logbook
20 Milestones

Publisher Robert B. Cooper
Managing Editor Jim Kyle
Associate Editor Russ Miller
Washington Bureau Robert E. Tall
Service Editor I. Kay Redd, Jr.
Contributing Editors Robert E. Brooking
Jeremiah Courtney
Advertising Director Stanley M. Searle
Associate Art Director Jean Schaefer
Business Manager Patrick T. Pogue

OUR COVER:

No, they're not space-ships on their way to the planets. The strange objects on this month's cover are three of the Plas-Tron gain antennas discussed in CH Showcase; each is for a different specific model of equipment. Antennas courtesy of Plas-Tron; photo by Clifford King.

ADVERTISING

Communication Horizons Magazine accepts commercial display advertising from bona fide manufacturers and distributors of communications equipment and associated apparatus. Advertising rate card and coverage data available upon request. Call collect area code 405 CEntral 2-1108 for advertising information.

CIRCULATION

Communication Horizons Magazine is read monthly by nearly 10,000 two-way communication engineers, technicians, installers and users. Detailed circulation breakdown available upon request.

COMMUNICATION HORIZONS (title registered U. S. Post Office) entered as second-class postage material May 20, 1961. Second-class postage paid, Oklahoma City, Oklahoma. All rights reserved. Subscription rates in the United States and Canada, $4.00 per year. Single copies not available. Subscriptions outside the U.S.A. and Canada, $5.00 per year.

Only from Andrew

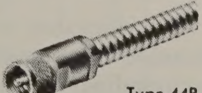
ALL COPPER Foam Coaxial Cable

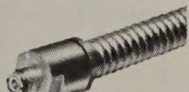
Here is the new copper Foam HELIAX "ready to install" cable kit that offers electrical superiority at no premium in price. Foam HELIAX is available in ½ and ⅞ inch diameters, cut to your specific length, with end fittings factory attached.

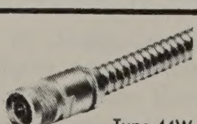
Unique corrugated design of the copper outer conductor permits Foam HELIAX to be pulled through conduit and around obstacles in applications where smooth wall cable could not be installed.

Cable Fittings for Foam Heliax

Type 44U
Type UHF jack for
½" Foam Heliax


Type 44P
Type UHF plug for
½" Foam Heliax


Type 45U
Type UHF jack for
⅞" Foam Heliax


Type 44W
Type N jack for
½" Foam Heliax

Complete specifications on Foam HELIAX available in Andrew Bulletin 8484. Write,

Andrew
CORPORATION
P.O. Box 807 • Chicago 42, Illinois, U.S.A.

Boston • New York • Washington, D.C. • Los Angeles
Toronto, Ontario, Canada

Antennas • Antenna Systems • Transmission Lines

Manufacturers Mobile Radio Relay

by WILLIAM L. DETWILER
RADIO SPECIALISTS CO.
DENVER, COLORADO

Manufacturers are beginning to take more and more interest in radio communication for their plant operations.

Part of this new interest is created by the pressing need for American industry to increase efficiency to deal with the price versus costs squeeze. Another part is the availability of portable, personally carried, radios which make radio communication a practicallity for many of their applications.

Of course, portable equipment has been available for years, but the size, weight, and battery costs of pre-transistor units made them impractical for most industrial uses. Transistor units are now available which can be easily worn on the person, and the low current demands of the transistor has greatly reduced battery costs.

In the early days of the "Low Powered Industrial" service, manufacturers used radio largely for the dispatching of lift trucks and other vehicles about the plant area. Battery problems and a multitude of installation and placement problems made each lift truck installation a troublesome item. Now, with portable equipment, the radio can be "installed" on the driver, who can then be reached whether or not he is near his truck. Also, personnel who do not use vehicles can now be readily equipped for radio communication.

With the new freedom of personally carried radios, new uses for radio communication are being found within industrial plants. Foremen, supervisors, maintenance men, and plant protection personnel are being equipped so they can be reached and consulted wherever they may be in the plant.

The use of radio to lift trucks was largely a "dispatching" type of function. That is, a fixed base operator dispatched the lift trucks to their destination. There was little need for the driver of one lift truck to talk to the driver of another—if the lift truck driver had good communication to the fixed base operator, the communication need was satisfied.

The communication needs of foremen, maintenance men, etc., are widely different from the lift truck application, however. Supervisory personnel have a need to confer with each other, as well as with a fixed base operator. To fully meet the communication need, a foreman in one end of the plant might need good communication to a roving maintenance man at the other end. Therefore, good portable-to-portable communication is needed.

Most of the communications are too complex to have them manually repeated by a fixed station operator, and such repetition dissipates the time saving advantages of radio. What is needed, therefore, is good, reliable, portable-to-portable communication.

Surprisingly, many prospects for Manufacturer's Radio systems do not actually realize their actual need for portable-to-portable communication at the time they are negotiating for their radio system. Unless an inquiring salesman or plant communication engineer seeks carefully into the proposed uses of the system, the need for this communication does not occur until a foreman tries to have a complex message relayed by his not-too-undersanding dispatch operator.

Those who are planning portable systems for plant use, therefore, should look carefully into the portable uses of the system. Determine whether a dispatching function or a coordination function is to be performed. If the need is for simple dispatching, portable-to-portable communication may be unnecessary. If the function is coordination between roving personnel, the system should be planned to provide it.

The distances over which direct portable-to-portable communication is feasible in industrial surroundings is quite discouraging. Since both portables are moving, one or both of these units are often going to be in an unfavorable location. Portables are restricted in their transmitter power output, in their antenna configurations, and antenna height by the need to make them small enough to carry. It often requires a high signal strength to overcome the electrical noise in industrial surroundings, and the shielding effects of metal and masonry walls all add to the problem.

These factors add up to making communication directly between portables impossible even over surprisingly small distances.

On the other hand, it is fairly simple to design a base station installation capable of giving excellent communication with portables throughout a given plant. The power available from the base, together with the use of high, centrally located, gain type, antennas are capable of overcoming the limitations of the distant portable.

The solution to the problem of portable-to-portable communication, is of course, to use the base station as a repeater station. Then, every portable will be able to communicate with every other portable, providing only that both units are within the range of the base station.

This kind of repeater arrangement is very popular in systems using mobiles. Under FCC rules it is called a "mobile relay". (In fact, portables are classified as "mobiles" under FCC rules). The "mobile relay" is rapidly growing in popularity in vehicular communication systems, for the same reason that it is valuable for portable systems — mobile-to-mobile communication range and reliability is vastly improved, and the new applications of radio are of a coordination nature which require excellent mobile-to-mobile coverage.

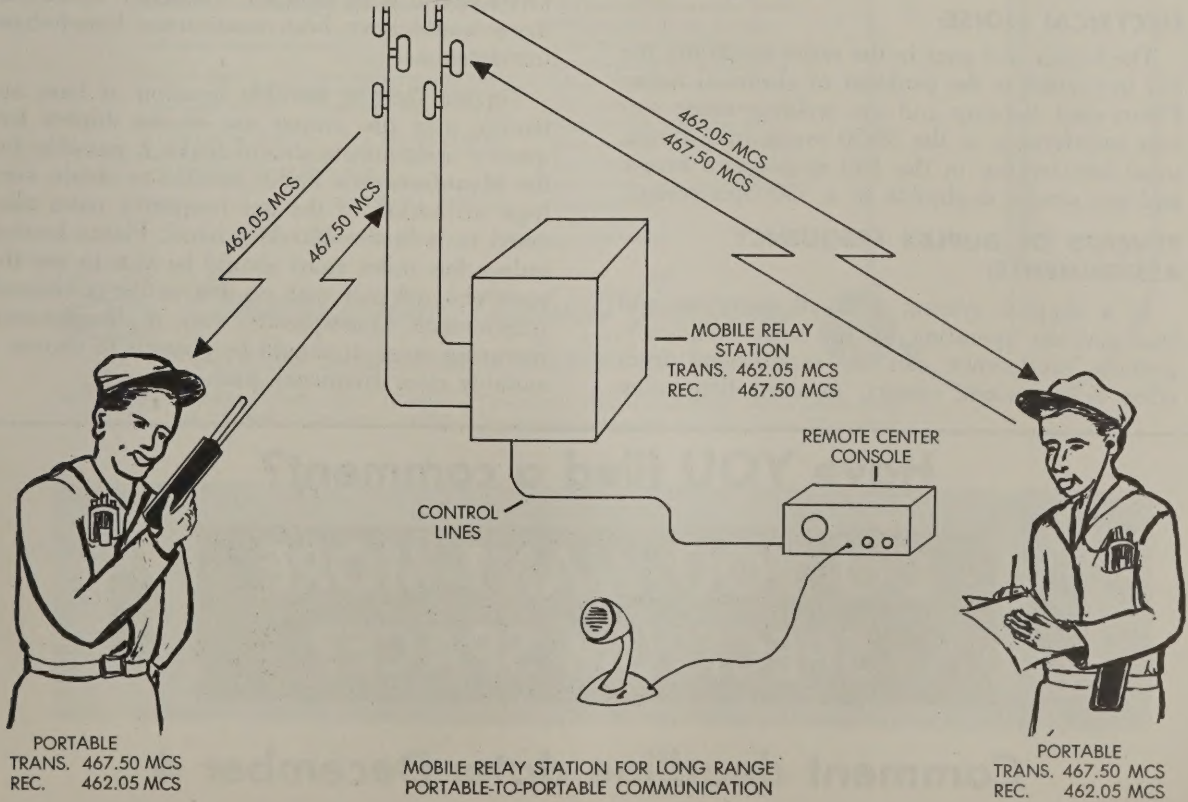
A "mobile relay" system using portables is shown in Figure 1. Typical frequencies from the Manufacturers Radio Service are given in the illustration. Notice that all portables transmit on one frequency, and they all receive on a different frequency. The "mobile relay" receives signals from portables on one frequency and automatically retransmits them to the portables on the other frequency.

In the illustration, the "mobile relay" station is also controlled from a fixed, remote control, location. This location can be used for base to portable communication, and any number of them may be used. It is quite feasible to connect the "mobile relay" system into the internal plant telephone system through this connection. If wire lines are not feasible to the location of the "mobile relay" it can be controlled by radio, using a control station which operates on the same transmit and receive frequencies as the portables. Also, the "mobile relay" might be located right at the dispatching point location, and controlled by the usual "local control" methods. In some applications there is no need for a fixed dispatching point, and if so, none need be provided.

FREQUENCIES AVAILABLE FOR MOBILE RELAY

In the Manufacturers Radio Service, mobile relays must use frequencies higher than 450 megacycles. Transistorized portable equipment has not been available for these frequencies until recently, so most manufacturers have had to forego the benefits of the portable-to-portable communication which the mobile relay provides.

Now that portable equipment for 450 megacycles is available, and has been tested in industrial environments, it is apparent that these higher frequencies offer some real advantages over the lower frequencies.



MOBILE RELAY STATION FOR LONG RANGE PORTABLE-TO-PORTABLE COMMUNICATION

The first advantage is the size of an efficient antenna on the portable. At lower frequencies, the designers of portable equipment often use antennas of shorter than ideal length. Typical personally portable units in the 30-50 Mcs and the 150 Mcs bands lose from 10 to 20 db of their power output or sensitivity because of this necessary compromise. On 450 megacycles, however, a quarter wave antenna is only 6" long, so the antenna can be of manageable length with no compomise in performance.

PROPAGATION:

Although the use of 450 megacycle frequencies over long ranges is seriously dependent upon terrain obstructions, there is little problem locating the mobile relay to overcome all terrain blocking in the usual industrial plant. Because of the short wavelength, 450 Mcs seems to have some significant advantages in overcoming the effects of shielding which are so serious in industrial applications.

Airlines have used 450 Mcs portables for ramp operations for some time, and have found that a 450 megacycle portable can "talk through" the shielding of an airplane. In tests on lower frequencies, a man wearing a portable lost communication with his base when he entered the airplane —even though the base antenna was within plain line-of-sight! The chemical and petroleum industries should find some applications of 450 megacycle portables because of their ability to talk-out of large tanks.

ELECTRICAL NOISE:

The higher one goes in the radio spectrum, the less important is the problem of electrical noise. Fluorescent lighting and arc welding cause serious interference in the 30-50 megacycles range, some interference in the 150 megacycles range, and are almost negligible in a 450 Mcs system.

BENEFITS OF DUPLEX FREQUENCY ASSIGNMENTS:

In a simplex system, with all portables and base stations operating on the same frequency, serious interference can be experienced from other licensees ten, twenty, or even fifty miles away. This is because the base station transmitter of the interfering system is on the same frequency as the base station receiver of the system receiving the interference. Since base stations usually use moderate powers, gain antennas, and high antenna locations, mutual interference over substantial distances can occur. This is especially serious in a portable system where a weak signal from a portable must compete with the strong signal from a base—even when that base is a considerable distance away.

Fortunately, the 450 megacycle frequencies of the Manufacturers Radio Service are allocated on a "duplex" basis. The ten frequencies from 642.05 to 462.50 Mcs are assignable to either base or mobile stations, but the ten frequencies from 467.50 to 467.95 Mcs are assignable only to mobile stations. Consequently, a licensee that set up a duplex system using the frequency arrangement shown in our Figure 1 can be assured that his base station receiver is protected from interference from other base stations. Fortunately, the lower power and antenna height of mobiles of other licensees greatly reduces their capability to create interference.

It is remarkable how many systems can be accommodated on the duplex frequency assignment without mutual interference. In one case an airline used the same frequency pair at Midway and O'Hara airports in Chicago. Although the two airports are only 20 miles apart, the two systems operated without any mutual interference whatsoever! With simplex frequency operation, there would have been continuous base-to-base interference.

Terrain factors, sensible location of base antennas, plus the proper use of the duplex frequency assignments should make it possible for the Manufacturer's Radio Service to obtain very high utilization of the ten frequency pairs allocated to it in the 450 Mcs band. Plants located only a few miles apart should be able to use the same channel pair with no destructive co-channel interference. Consequently, even in dense manufacturing areas, it should be possible to choose a suitably clear frequency pair.

Have YOU filed a comment?

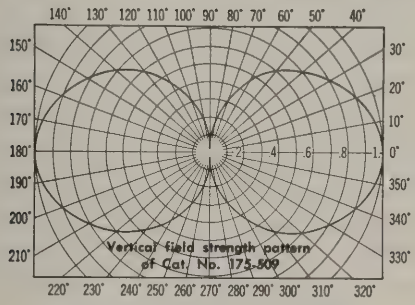
DO YOU WANT MORE SPECTRUM SPACE?

Comment deadline date: December 4

C·P COMMUNICATION ANTENNA SYSTEMS

—mean CERTIFIED PERFORMANCE!

BASE STATION STORM CHAMPION† UNITY GAIN ANTENNA (Heavy-Duty, Precipitation-Static Resistant)



Vertical field strength pattern of Cat. No. 175-509

Electrical Specifications:

Nominal input impedance	50 ohms
Maximum power input	500 watts
Internal feedline	RG-8A/U
Flexible terminal extension	18″ of RG-8A/U
Termination	Type N male with Neoprene housing
VSWR	1.5:1
Bandwidth	±1%
Lightning protection	Direct ground

Mechanical Specifications:

Radiating element	2″ dia. red brass tube
Radiating element housing	3″ dia. fiberglass tube
Support pipe	4″ dia. hot-galvanized steel, 24″ length available for mounting
Rated wind velocity	100 MPH with ½″ of ice
Lateral thrust at rated wind and ice load	150 lbs. at 30 Mc
Bending moment 6″ below top of support tube at rated wind and ice load	1400 ft. lbs. at 30 Mc
Weight	80 lbs. at 30 Mc

Cat. No. 175-509 Frequency Range 30-50 MC*

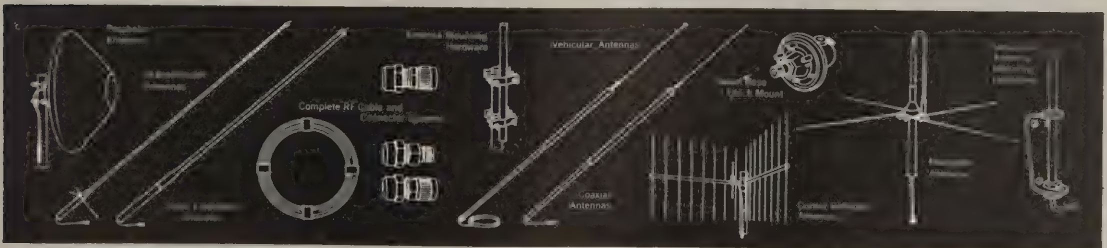
Cat. No. 175-509 STORM CHAMPION Antenna is designed for service in areas where maximum physical strength and/or resistance to precipitation static is required. The antenna consists of a galvanized steel element support tube running from the grounded antenna base through the entire structure to a lightning arresting device at the extreme top. The shunt-fed coaxial radiating element is mounted on this element support tube and the entire structure inserted into a fiberglass tube which is permanently sealed. This design results in a reduction of precipitation static interference in the order of 20 db. This noise reduction will permit a communication system to render effective service when nearby installations with exposed radiators are completely inoperative.

**Exact frequency must be specified* *†Formerly STORM/MASTER*

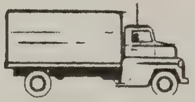
SINCE 1933

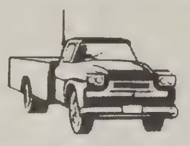
COMMUNICATION
ANTENNA SYSTEMS
FOR AMERICAN
BUSINESS

Communication Products Company
DIVISION OF
PHELPS DODGE ELECTRONIC PRODUCTS
CORPORATION
MARLBORO, NEW JERSEY—Telephone HOpkins 2-1880 (Area Code 201)
LOS ANGELES 65, CALIF.—Telephone CHapman 5-1143 (Area Code 213)

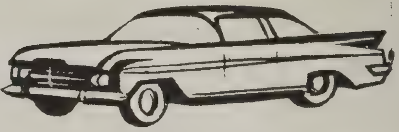


SHOP TALK





With
I. Kay Redd, Jr.
Servicing Editor



SERVICING POCKET RADIOS

Not many years ago two-way service men would hardly believe they would ever be servicing equipment more miniature than the old tube-type portables, but it looks like the time is here when we must repair transistorized radios no larger than a pack of cigarettes.

The first time the service man encounters one of these he will set it up on the same bench normally used for a mobile unit and go to work on it with the same tools and equipment he has been using for mobile units. In short order he will have the feeling of a bull in a china shop and throw up his hands in despair. If you have been servicing some of these pocket radios, you know that this man certainly took the wrong approach to begin with, but there are ways of tackling one of these problems that makes it just as simple as servicing a mobile unit.

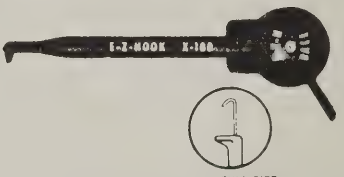
First of all, the bench position used should not be the same as the one used for mobile units. It should be at a greater height than the mobile bench so that your eyes will be closer to the radio without stooping; if you have to work on these things, you might as well be comfortable while doing it.

The work bench should also be much cleaner than the mobile bench which is usually cluttered with little bits of wire and solder. For the miniatures the bench position should be not only spotlessly clean, but covered with a white piece of paper or white Formica so that small parts can be easily seen.

Also, you will need much more light than you probably use for other service work, and this light fixture should be close to the bench top. One of the best is a lamp with a large magnifying glass set in the center of a circular fluorescent tube called a "Luxo Lamp" manufactured by the Luxo Lamp Corp. of Port Chester, New York.

Next you will need the proper tools for miniature work. Your long nose pliers and diagonal cutting pliers should both be extra narrow with fine tapered points. You will need a pencil-type soldering iron with an extremely fine point. Fifteen watts is sufficient. The point of your soldering aid must be small enough to fit in the hole of a printed circuit board for removing solder. A good pair of tweezers will come in handy and to save delicate transistors and diodes from being ruined by heat, you should have a couple of heat sinks.

When you first try to measure a voltage with your standard test leads and probes, you will probably find that you cannot touch the point in question without touching several other points at the same time, and the leads are so heavy that they tend to drag the whole radio around. The solution to this is an "E-Z-HOOK" (see illustration) which will reach into the most congested places and stay connected. There will undoubtedly be other tools or equipment such as special connectors that you will find convenient or necessary for whatever particular radio you may have occasion to service.



FULL SIZE

When you are working on a pocket radio you should rest your arms and wrists on the bench and work with your fingers in the manner of a watch repairman. If you have occasion to solder a temporary connection to a piece of printed circuit, it should be soldered toward the center of the conductor rather than at one end so there will be less chance of it tearing loose. Be careful when using an ohmmeter as the voltage can ruin a transistor. The solder used should be of a low-temperature type.

If you are set up for working on these radios in the above manner, you should find working on pocket radios just as easy as working on a mobile. If you are not set up for it, you can cause more trouble than the radio had to begin with. ■

Have YOU filed a comment?

DO YOU WANT MORE SPECTRUM SPACE?

Comment deadline date: December 4

100 YEARS IN ST. LOUIS FOR NEW SHOP

EXPERIENCED STAFF HELPS ESTABLISH NEW ST. LOUIS RADIO FIRM

More than 100 years of radio electronics experience is enabling the newly organized St. Louis Electronic Service Company to keep two-way radio and radio paging equipment in St. Louis in top operating condition.

"The experience of our eight-man staff is vital in completing both scheduled maintenance checks and emergency repairs swiftly and efficiently," said Robert Hunnicutt, co-owner of the new Motorola service station.

In its comprehensive service operations, the company regularly inspects and tests each piece of radio equipment serviced under Motorola maintenance agreements. This includes initial installation of equipment as well as continued checks to insure proper system operation. Altogether, the company maintains approximately 1,500 mobile radios and 45 base stations.

St. Louis Electronic Service was founded in late 1961 by Hunnicutt and Elmer "Bud" Wade, who each have 20 years of radio experience. Rounding out the company's staff are six technicians, including one specialist in UHF (450-470 Mc) radio equipment, another who handles transistorized radio paging gear, two men specializing in mobile radio installations and a part-time general repairman. To provide customers service after normal working hours, the company has another general repairman to service calls at night.

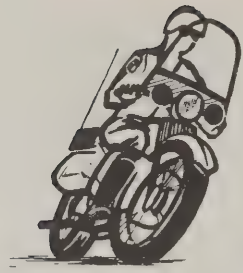
Using their experience as former owners of a Motorola service station in Ohio, Hunnicutt and Wade designed and rebuilt the interior of their present headquarters to handle all service requirements. At this same time, with the help of Bruce Lane, Motorola service representative in St. Louis, the two owners arranged systematic maintenance programs with each radio user.

At present, most radio repair work is performed at the company's headquarters building, consisting of a shop with four work benches, each equipped with complete test instruments and tools, a spacious 18-car garage in the rear of the building, an inventory room filled with tubes and parts, and front office facilities. The firm also operates two mobile vans, fully equipped to handle all emergency and maintenance work at customer locations.

Bob Hunnicutt, owner of St. Louis Electronic Service, tests new base station before installing it at a customer location.

The new service station also operates its own radio network for communications with technicians at job sites. Use of the radio system enables the company to contact its men immediately in emergencies, to exchange vital information and to route technicians to new assignments.

"The experience of our staff helped us establish an excellent service record right from the start," said Wade. "However, to keep that experience up to date, all of our people regularly attend Motorola service schools and clinics. By doing this, we not only learn the technical aspects of new radio developments, but also are prepared to service them properly and completely," he said.



PUBLIC SAFETY COMMUNICATIONS

by Robert E. Brooking, Communications Engineer — City of Burbank, California

A PROGRESS REPORT

As the year 1962 approaches its conclusion, it might be advisable to pause a moment and review what has been done in regard to Public Safety Communications.

Probably one of the most important things that transpired during the year was the formation of the Public Safety Communications Council last April in Washington, D. C. The Council met again on October 25th and 26th, this time in Chicago. Chairman Max Guiberson of the Forestry Conservation Communications Association extended an invitation to the American Association of State Highway Officials to have representatives present at the meeting. Thus when Chairman Guiberson called the meeting to order at 9 A.M. on October 25th, all of the major public safety communications groups in the United States were present.

Chairman Guiberson had also written a letter to Commissioner Newton N. Minow, Chairman, Federal Communications Commission, requesting that Mr. John McCue, Public Safety Division Chief and Mr. Leonard S. Kolsky, Chief of the Division's Rules and Standards Branch, be authorized to attend the meeting. Chairman Minow's letter in reply is reproduced herewith:

FEDERAL COMMUNICATIONS COMMISSION
Washington 25, D. C.
Oct. 12, 1962

In Reply Refer to:
7400

AIR MAIL
Mr. Max Guiberson
Public Safety Communications Council
7810 Martin Way
Olympia, Washington

Dear Mr. Guiberson:

I am pleased to inform you that both Mr. John McCue and Mr. Leonard Kolsky will be present when the Public Safety Communications Council meets in Chicago, Illinois on October 25 and 26, 1962. Your proposed agenda contains many items which are of importance not only to public safety users but to all the Land Mobile Radio Services.

The Commission appreciates your invitation to our staff members and hopes that the meeting will be successful.

Sincerely yours,
(Signed) **Newton N. Minow**
Chairman

After calling the meeting to order, Chairman Guiberson introduced Mr. McCue, who reiterated the statement of Chairman Minow that the Commission considers the Public Safety Communications Council vital not only to Public Safety but to all the Land Mobile Radio Services. Mr. McCue added that the Commission has "high hopes" that the P.S.C.C. will become the vehicle for effecting coordination among users in the Local Government Radio Service.

He stated again that unless a means was developed for providing for such coordination, then all applicants filing for Local Government licenses after October 31, 1963, would be required to submit an acceptable engineering report indicating that harmful interference to the operation of existing stations will not be caused.

Mr. McCue went on to comment that the Commission is not desirous of forcing governmental entities into the position of supplying such engineering reports nor does the Commission want to devote the time required to study such engineering reports. He also reported that many governmental entities desiring to install Local Government radio systems have not been able to obtain the required letters of concurrence because of the hesitancy of some licencees to concur even where the proposed system was 30 Kc removed and geographically separated.

Mr. Kolsky stated that the Commission was interested in receiving a progress report from P.S.C.C. as to any proposals it might have toward resolving this problem. Mr. McCue and Mr. Kolsky then excused themselves from the meeting and the assembled representatives went to work.

In addition to Chairman Guiberson, Mr. Raymond Littlejohn, President F.C.C.A., represented the Forestry Conservation Communications Association with President-elect Fred Waters serving as Technical Adviser. Vice Chairman Edward F. Tierney represented the Eastern States Police Radio League; a successor to Capt. Vickerson, retired, has not yet been named.

International Municipal Signal Association was represented by Chief Thomas P. O'Brien and Mr. Jorman I. Koski with Mr. William H. Crocker serving as Technical Advisor. Associated Public-Safety Communication Officers was represented by Mr. Harvey O. Platt, President and Capt. Frank Campbell, Vice President with attorney Joseph M. Kittner serving as legal advisor.

The American Association of State Highway Officials sent Mr. Bernard Twombly and Mr. Earl O. Swanson to observe the proceedings. They will give a report on the meeting at the National Conference of AASHO to be held in Miami Beach, Fla. on December 7, 1962.

Chairman Guiberson called for the second order of business, the organizational format and constitution. President Platt requested that Mr. Kittner be granted the floor to discuss the organizational structure from the viewpoint of an attorney. Mr. Kittner prefaced his remarks by stating that since he was the only legal advisor present he felt obligated to consider this situation in any statements he might make. He then suggested that whatever constitution or guidelines might be adopted, it should be by unanimous agreement.

A motion was passed unanimously pledging this course of action. The second suggestion was that P.S.C.C. would not vote on filings and other matters to be presented to the Commission. In short, it was proposed that "The concept of a forum for the regular discussion of issues vital to Public Safety Communications is the most important and primary function of P.S.C.C."

The Council then began considering the draft proposal for a Constitution and By-Laws. Upon completion of this task, Secretary Brooking was instructed to rewrite this document with the advice of Attorney Kittner.

The third item on the agenda was a discussion on Local Government Frequency Coordination. Unamimous agreement was reached that: "The various frequency advisory committees shall develop means of interchanging requests at the local level. An applicant may send a request to any frequency advisory committee. No matter which organization receives the request, it will be checked out by each committee and will contain the signatures of all committee chairmen."

Chairman Guiberson then requested Secretary Brooking to report on Dockets 14712, 14729 and 14744. The three dockets would affect the microwave portion of the spectrum and have been previously covered by both this column and Bob Tall's "Our Man In Washington". This was followed by a discussion on Docket 14503.

At the conclusion of this discussion Mr. Kittner pointed out that even if we get some more usable frequencies out of Docket 14503, we are still on the defensive. We are still defending our operating space on a kilocycle by kilocycle basis. He went on to point out that under the Communications Act of 1934, the Commission has a statutory responsibility to determine the needs of the Public Safety Radio Services. Mr. Kittner went on to explain that APCO's position is that a study must be made as to the needs of the Public Safety Radio Services for the next ten years. He concluded by recommending that reply comments include requests for oral argument before the Commission.

The final docket discussed was 14785, proposing to split the channels in the 72-76 Mc Operational Fixed Band from 40 Kc to 20 Kc. This will replace 38 of the 40 operating frequencies which were deleted to provide space for the Radio Astronomy Service. However, the present restrictions regarding interference to TV channels 4 & 5 would continue to obtain. These restrictions (Section 10.101 (c)) largely preclude use of these frequencies in most of the large metropolitan areas.

At 8:20 AM, October 26th the meeting reconvened. Mr. McCue stated that he had received a progress report and that in his opinion he feels much better about the possibility of Local Government coordination. He added that the Commission will develop the mechanics, listing for each state, the names of the individuals responsible for effecting coordination without listing affiliation. When the various signatories to P.S.C.C. have agreed upon a procedure for effecting such coordination, staff personnel of the Commission will be ready to meet with representatives of the frequency advisory committees of the various groups and prepare proposals for changes in Section 10.8 of the Commission's Rules. These proposals would also affect other interspersed assignments such as Highway Maintenance and Police. Mr. McCue concluded that this represents the minimum which will be acceptable to the Commission.

Among those who spoke to the Council were William Gamble representing the National Industry Advisory Committee. His report of the need for Public Safety Communications in the interest of National Security was most timely in view of the tense international situation.

Mr. William Weisz, Vice President of Motorola spoke as a representative of the E.I.A. Land Mobile Sub-Section in connection with the petition of that group for re-allocation of TV channels 14 & 15 to the Land Mobile Services. This petition has been previously covered.

After adopting the revised Constitution and By-Laws, Mr. Guiberson tendered his resignation as Chairman. FCCA was selected by acclamation to chair the organization in 1963. President Littlejohn again named Mr. Guiberson to the post. The remaining organizations then were selected by drawing names, with IMSA for 1964, APCO for 1965 and ESPRL for 1966.

The next meeting of the Council will be held in Chicago in April 1963.

Meanwhile, your editor hopes to see you at the National Technical Conference of the Professional Group on Vehicular Communications of the Institute of Radio Engineers. The conference will be held December 6 & 7, 1962 at the Disneyland Hotel, Anaheim, California. ▬

CH SHOWCASE

150 MC GAIN ANTENNA

With all the claims made for antenna gain, it's a bit refreshing to find a new antenna for which the manufacturer claims "as little as 1.5 db" gain over a ground plane. So refreshing, in fact, that we decided to give this antenna—the *Plas-Tron* model BG—a full lab going-over.

Physically, this is a half-wave Swedish steel whip, designed to replace existing quarter-wave whips. Several models are offered, with different base connectors, to replace almost any existing type of rooftop whip or walkie-talkie antenna. The thing that makes this antenna different is a matching network in the base, consisting of a lockable outer shell which rotates around a fixed inner plate to provide variable capacitance.

Our tests were made under both lab and field conditions. Field performance was noticeably better than the reference quarter-wave whip. Lab tests — performed under Bell Telephone Company supervision at one of their regional labs—indicated 4.2 db gain for receiving, as compared to a conventional whip. Other measurements indicated a receiving gain of 6.3 db on a walkie-talkie.

One important point must be emphasized: This antenna requires tuning with accurate test equipment. It is *not* an item suitable for installation on a do-it-yourself basis. However, any qualified service technician is capable of installing and tuning it (note—on Motorola equipment, the receiver front end must also be retuned).

Retail cost, including installation, should be in the neighborhood of $30 depending on service fees in any individual locality.

In conclusion, this antenna outperforms the manufacturer's claim. It appears to be an inexpensive way to increase reliability of a 150-Mc system. Plas-tron is located at 815 S.W. Viewmont Drive, Portland, Oregon. Tell them you saw it in CH.

FM DEVIATION METER

A different type of FM Deviation Meter claimed to give quick, positive measurement of instantaneous peak deviation independent of audio waveform has been announced by *Radio Specialty Mfg. Co.*, 2023 S. E. 6th, Portland, Oregon.

The meter, model 1163, uses a 3-inch oscilloscope (built into the unit) instead of a meter to provide the instantaneous-peak-reading feature. Frequency range is from 25 to 55 Mc and 145 to 175 Mc (a 450-Mc tuning unit is planned for early release). Required signal input is 1 millivolt or more at approximately 50 ohms. Calibration markers are provided by the instrument, and a front-panel tuning meter assures sufficient signal for accurate measurement.

Four different assemblies are available at prices ranging from $580 to $725. For complete details, write the manufacturer.

TWO NEW ITEMS FROM HAMMARLUND

A miniature tone generator smaller than a package of cigarettes, and a notch-type bandstop filter to allow simultaneous transmission of voice and control signals over the same channels, are the latest items announced by *Hammarlund Mfg. Co., Inc.*, 53 West 23rd, New York 10, N. Y.

The tone generator is available for operation at all CCITT frequencies as well as at other frequencies in the subsonic to supersonic range. 22-volt external power is required. Model number of the unit is MT-3.

The filter provides a 65-db (or deeper) notch between 1650 and 1900 CPS. When installed in a voice circuit, it allows up to three tone-derived data, control, or telegraph channels to be inserted in this range without interaction between voice and tones. Its designation is ZF-22B.

For full data and specifications on either unit, write the manufacturer.

TECHNICAL BOOKLIST

A 40-page catalog of technical books currently available from *Howard W. Sams & Co., Inc.*, listing more than 200 titles, is available from Sams for the asking.

Subjects covered by the books range from Amateur Radio through Audio and Hi-Fi, TV servicing, and computers, to Commercial Communications. A number of the titles appear to be of interest to the non-broadcast industry.

For your copy, write Technical Book Division, Howard W. Sams & Co., Inc., 4300 West 62nd Street, Indianapolis 6, Ind.

(Turn to Page 15)

on other horizons

Amateur Radio Above 50 Megacycles

VHF HORIZONS

Two-Way Radio for Business and Pleasure

CB HORIZONS

tv

The Professional Television Journal

HORIZONS HP PUBLICATIONS

the first family of electronics specialty magazines

LOGBOOK

A CALENDAR OF IMPORTANT MEETINGS AND EVENTS OF INTEREST TO MOBILE COMMUNICATIONS.

Submit items for this column to CH Washington Bureau Chief, ROBERT E. TALL at 1327 F STREET N.W., WASHINGTON 5, D.C.

Nov. 19—Deadline for reply comments on proposals to assign channels in the 1990-2110 or 2500-2690 Mc bands for use by educational TV (Docket 14744).

Nov. 30—Deadline for reply comments on FCC proposals to service-allocate mobile radio split channels in the 25-42 Mc band and make revisions in present assignment of frequencies in the band (Docket 14503).

Dec. 6-7—13th National Conference of Institute of Radio Engineers Professional Group on Vehicular Communications. Disneyland Hotel, Anaheim, Calif.

Dec. 7—Annual meeting of American Association of State Highway Officials' Committee on the Use of Radio in Highway Departments. Americana Hotel, Miami Beach, Fla.

Dec. 14—Deadline for comments on draft proposals for international frequency allocations to support space programs (Docket 13522).

Jan. 1—Date when new revised FCC Form 505 must be used for Class B, C, or D Citizens radio applications.

Jan. 1—Effective date of merger of Institute of Radio Engineers and American Institute of Electrical Engineers into new Institute of Electrical & Electronic Engineers.

Jan. 8—Opening date for bids on Colorado River Storage Project microwave radio system for U.S. Bureau of Reclamation.

Jan. 9—Deadline for reply comments on draft proposals for international frequency allocations to support space programs (Docket 13522).

Jan. 17-18—Mid-winter meeting of the Florida Chapter of Associated Public-Safety Communication Officers. Mara Vista Beach Court, West Panama City Beach, Fla.

Jan. 17-19—9th annual meeting of National Telephone Cooperative Association. Flamingo Hotel, Las Vegas, Nevada.

Oct. 31, 1963—Mobile radio users must meet full narrow band technical standards of FCC.

Nov. 1, 1963—Fire radio systems must move off frequencies allocated to the police radio service.

NEW

Build in . . . and Built for ALL Receivers!

HALLETT Message Master

Pats. Pending.

RECEPTION UNDER ALL CONDITIONS!

- Masters your vehicle ignition noise!
- Masters other vehicle's ignition noise!
- Masters power line noise!
- Masters generator-regulator hash!

Write for Technical Bulletin

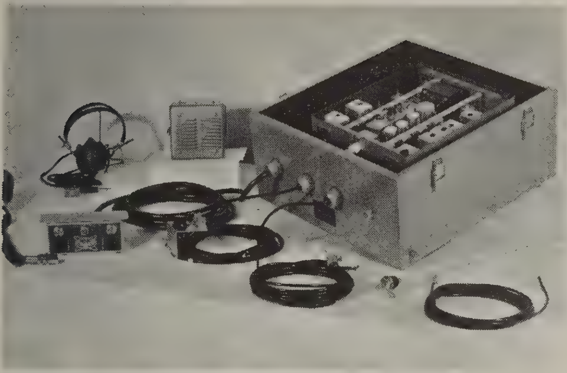
USER NET PRICE $42.50
Federal Excise Tax exempt user net price $39.40

Exemption Certificate must accompany order for deduction to apply.
Prices include prepaid surface transportation to Continental U. S. A. destinations.
Applicable State and Local taxes will be additional.

Advise Receiver, Make, Model, 1st I.F. frequency and receiver filament voltage (6 or 12 volt) — specify for base station or mobile unit.

HALLETT MANUFACTURING COMPANY 5912 Bowcroft St · Los Angeles 16 California

CH Showcase ...... from p. 12



AIRPORT COMMUNICATION GEAR

A two-way mobile radio designed especially for military airport vehicles, requiring voice communications with air control towers in the 225 to 400 Mc range, has been announced by *Communications Company, Inc.*, 300 Greco Avenue, Coral Gables, Fla.

The new unit, Model 700, can be used interchangeably with 6, 12, or 24-volt vehicles. It can also be supplied in a hand-pack case to operate from 6, 12, or 24 VDC or 117 VAC.

For full specifications and data, write Frederick R. Macklin, COMCO sales manager.

PUSHBUTTON TONE CONSOLE

A device which allows a dispatcher to call up to 99 mobile units individually, reaching each unit in one second flat, has been announced by *General Electric's* Communication Products Department, Lynchburg, Va.

The new device, the "Encoder 100", is an accessory for the current G-E mobile line. It is a selective-calling device using mechanical vibrating reeds. All circuitry is fully transistorized.

For complete specifications and data, write Section P, G-E Communication Products Department, P. O. Box 4197, Lynchburg, Va. Tell them we sent you.

(Turn to Page 19)

NOW—A HIGH GAIN, BROAD BAND ANTENNA PERFECT FOR DUPLEXING...

Model 229

Frequency Range	148-174 Mc.
Gain*	+6.1 db
Impedance	
Nominal	50 Ohms
V.S.W.R.	Less than 2 : 1
Bandwidth	±1.25% at F_o
Rated Input Power	300 Watts

*Referred to a ½ wave dipole

THE SINCLAIR MODEL 229 VHF BASE STATION ANTENNA

- **High 6.1 db gain**—the unique design of the Sinclair Model 229 allows the antenna to maintain a constant 6.1 db gain over its entire bandwidth with minimum "pattern breakup" . . . even at the extremities of its band.
- **Broad 4 Mc. Bandwidth**—four times wider than most similar types of antennas. The Model 229 is perfect for either duplex or simplex operation.
- **Rugged Construction**—built entirely of anodized aluminum, the Model 229 weighs only 25 lbs., yet will withstand a horizontal wind thrust of 110 mph. Fiberglass protects the driven elements against lightning and ice damage.
- **Free Literature Available**—includes all electrical and mechanical specifications, patterns and curves. Write today for Bulletin 62-ANT-229.

Selected Sales Territories still available —
contact J. E. Onofrio for details.

SINCLAIR RADIO LABORATORIES, INC.
3445 RIVER ROAD DEPT. CH-4 TONAWANDA, NEW YORK

OUR MAN IN WASHINGTON

by Robert E. Tall
Chief
Washington Bureau

FCC STUDY ASKED ON INTERCONNECTION

Jeremiah Courtney, Washington communications attorney, has asked FCC Chairman Newton N. Minow to appoint a Commission staff committee to look into the status of negotiations between RCC's and Bell System telephone companies concering interconnection of Bell landline facilities and FCC radio equipment.

"I have reluctantly concluded," Courtney wrote in asking the study, "that they (results of current such negotiations) will not be good, unless the Commission interests itself in the matter."

Courtney said he is not suggesting that a formal hearing be ordered "at this time" but that he is suggesting that the Commission obtain "full facts concerning the up-to-date results and status" of the negotiations.

The veteran Washington attorney listed five specific points of contention between RCC's he represents and the Bell System. These points, he said, "illustrate the extent to which no satisfactory interconnection agreement has been achieved through the NMRS negotiations with Bell."

NAM's CMRU RE-ELECTS CHAIRMAN

Victor G. Reis, of the Bethlehem Steel Co., was re-elected chairman of the NAM Committee on Manufacturers Radio Use at the 10th anniversary meeting of the group in Washington.

Attending the meeting were seven FCC commissioners, including Chairman Newton N. Minow, and a number of Commission staff officials.

Reis suggested in his talk that business corporations explore the possibility of unifying control of four major communications activities under a single executive. The activities were systems and procedures, mail, mobile radio and microwave, and wireline. He suggested that such centralized control of communications would allow maximum use of communications services.

FCC COMMON CARRIER BUREAU REORGANIZES

Reorganization of the FCC Common Carrier Bureau, in line with the Booz-Hamilton report, may result in creation of separate new Microwave and Mobile Radio branches within the Domestic Radio division early next year.

The License Branch was placed under the "administrative supervision" of the division, leading Washington observers to believe that a split of microwave and mobile branches is probable.

MICROWAVE SYSTEM BIDS ASKED

The U.S. Bureau of Reclamation has invited bids for a "complete multichannel microwave radio system" to supervise and control the electrical power system of the entire 5-state Colorado River Storage Project.

The system involves "13 fixed stations and as many repeater relay stations as the contractor considers necessary for effecive operation," the bureau said. Access roads must be built by the contractor.

The successful bidder must complete the installation within 420 days. Bids, under specification no. DC-5853, are to be opened at the Denver, Colo., Federal Center on January 8.

ENFORCEMENT STEP-UP IN GEAR

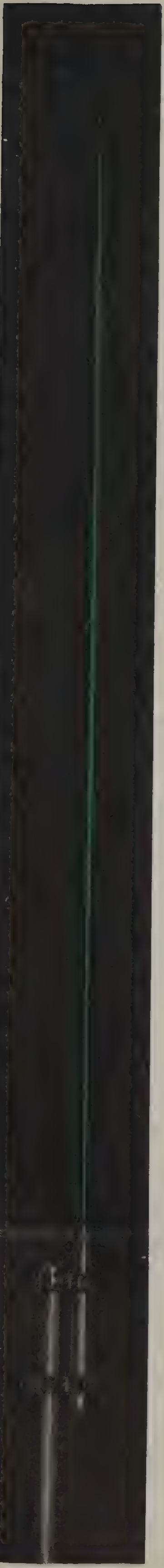
Two commercial radio operators—in addition to the usual class D Citizens service licensees—have been ordered to "show cause" by the FCC. The two actions are believed to indicate start of the long-predicted step-up in Commission enforcement action.

Tom Harrison, doing business as City Cab Co., of Elko, Nevada, was ordered to show cause why his Taxicab Radio Service license should not be cancelled. He is accused of failing to respond to five FCC letters following an official notice, and also of four violations detailed in the original notice.

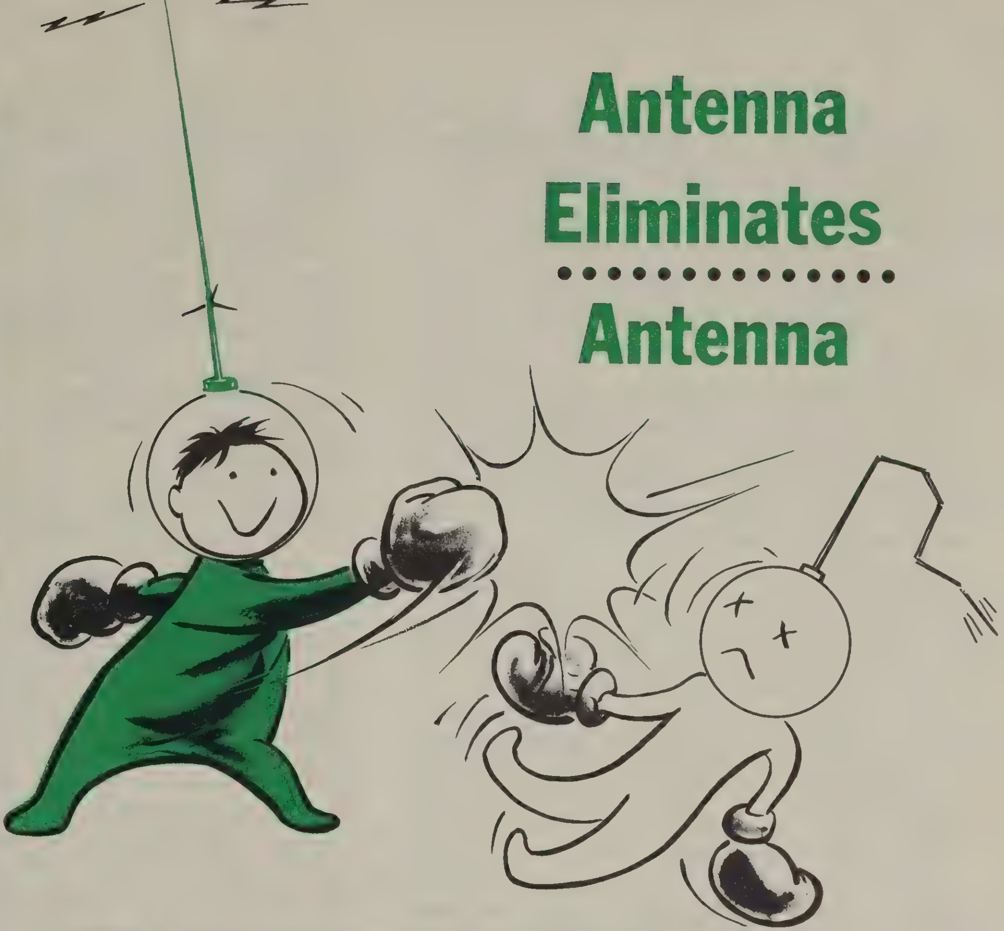
The other licensee—this one in Special Industrial Radio Service—involved was Eureka Flying Service, Eureka, Kansas. The firm was also charged with failure to respond to FCC correspondence, after the agency had notified the firm that lighting of the radio towers was "apparently not being maintained in accordance with requirements."

NEW SIRSA SECRETARY NAMED

Wayne V. Black has been appointed executive secretary of the Special Industrial Radio Service



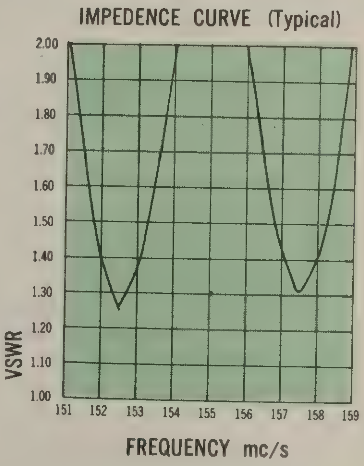
Antenna Eliminates
•••••••••••••••
Antenna



NOW! Get Optimum Two-Frequency Performance with ONE Antenna . . . the Prodelin OMNI-6 DD*

Here is an ideal antenna for Mobile Telephone Service, mobile repeat, or any full duplex or two-frequency application. Its unique double-dip resonance characteristic enables both receiver and transmitter to deliver optimum performance without compromise — making two separate antennas unnecessary.

The Omni-6 DD has a 5.8 db gain over a 1/2 wave dipole at two discrete frequencies with nominal 5 to 10 Mc/s spacing in the 144-174 Mc/s band. VSWR is 1.5:1 or less at **both** frequencies.


IMPEDENCE CURVE (Typical)

Write Dept. M for Catalogs

598—Omni-6 DD and 10 other 2-Way Antennas
603—Microwave Parabolic Antennas and Accessories
595—Rigid '800' Coaxial Transmission Line
591—Spir-O-line and Spir-O-foam Semi-Flexible Coaxial Cables, and Spir-O-lok Connectors

"THE WORLD'S FINEST"
Prodelin®
ANTENNA AND TRANSMISSION LINE SYSTEMS

* Double-Dip Resonance

Prodelin, Inc., Hightstown, N. J. • **448-2800** Area Code 609 • **California Engineering Offices & Warehouse Stock:** 6400 Corvette St., Los Angeles 22, **OV** 5-7540 • 870 Tennessee St., San Francisco 7, **AT** 2-8472.

Association, succeeding G. Kenneth Adams who resigned. Black was formerly assistant secretary of the national freight claim council of the American Trucking Associations.

FREQUENCY STUDY FUNDS KILLED

A grant of more than $100,000 to finance a study of the government's management of its part of the radio frequency spectrum died in the closing hours of Congress when no action was taken.

The grant, to the White House telecommunications organization, had been recommended by both houses. A new request is expected to be made when Congress reconvenes in January.

MICROWAVE PROPOSAL DELAY OF ONE YEAR ASKED

The National Association of Educational Broadcasters has asked the FCC to hold off, for a year, on three current rule proposals involving the microwave region. Docket numbers of the actions are 14712, 14729, and 14744.

The proposals have drawn fire from a number of sources. Included among those opposing the proposals was Riverside County, California, whose $400,000 microwave system (CH, July, 1962, page 12) would be forced to move to other parts of the spectrum.

None of those opposing the moves are taking stands against educational TV, the comments point out. However, most opponents of the proposals suggest that vacant UHF TV broadcast space be filled before communications frequencies are reallocated to TV use.

WANTED

Communications Engineers
Electronics Technicians
for
Challenging Assignments in Two-Way Communications with Los Angeles County

ENGINEER: ($663-$825 per mo.)

Requires EE degree and 2 yrs. exp. on communication systems. Addit. exp. OK in lieu of college.

TECH.: ($534-$629 per mo.)

Requires 3 yrs. exp. in the installation, maintenance and repair of transmitting and receiving equipment.

NOTE:

Both positions require 1st class Radio-telephone operator's license prior to appointment.

Write immediately for official application form. Civil Service examination for Electronics Technician is tentatively scheduled for December 15, 1962. However, applications received too late for this date will be automatically accepted during the rest of this year for another examination early next year. The date for the Electronics Engineer examination will be announced later.

For further information contact:
Recruitment Services
County of Los Angeles Civil Service Commission
222 N. Grand Ave., Rm. 461
Los Angeles 12, Calif.

Comment deadline on docket 14744 was extended to November 19 at request of the National Television & Radio Center; deadline on the other two was November 1.

HOFFMAN HEADS 'SPECTRUM COMMITTEE'

Reappointment of H. Leslie Hoffman, chairman of Hoffman Electronics Corp., as chairman of the EIA's "Spectrum Committee" has been announced.

The "Spectrum Committee" represents EIA in seeking to achieve consolidation of government administration of the radio spectrum.

MICROWAVE DIVERSITY PROGRAMS NOW UNDER TEST

Developmental programs to determine the feasibiliy of combining 6 and 12 Mc microwave systems in frequency-diversity operations by private microwave systems have recently been authorized by the FCC.

One of the developmental authorizations is that of Continental Pipe Line Co., for combined equipment at Wichita Falls and Henrietta, Texas, and at Wilson, Oklahoma. Another is on the Union Pacific Railroad system, in Nebraska.

CONTINUED POLICE TV TEST OKED

Continued experimental use of scrambled TV signals to transmit the daily "line-up" to precinct stations all over New York City has been okayed by the FCC.

New York police have been conducting the test in conjunction with operation of WUHF on channel 31 in a Commission-sponsored propagation study. The study was to end on November 1, and the station was turned over to the City of New York for operation under the call WNYC-TV.

Permission to continue the police test was granted for a one-year period, effective Nov. 1.

FIRE DEADLINE STRESSED

The November 1, 1963, deadline for splitting fire and police radio operations has been again stressed by FCC Public Safety Division Chief John J. McCue.

McCue told the International Municipal Signal Association meeting in Montreal that the Commission expects "full compliance" with the rules involved, pointing out that full notice of the deadline has been given.

He also cautioned listeners that fire and police licensees must be considered separately in service-allocation of frequencies in the 25-42 Mc region, and that the two areas of public safety radio usage will have to stand independently on their respective comments on the proposal.

Splatter ....from p. 1

mobile radio equipment and related control elements, microwave links, frequency measuring equipment, and other test gear.

Speakers include Bell Telephone Lab scientists, RCA engineers, a Phillips Petroleum Company official (telling of field results with ignition-noise-reduction circuitry), a number of public safety offícals, and engineers from G-E and Motorola.

In addition to the technical papers, a panel discussion on "The Crowded Frequency Spectrum" with participation by government and industry user groups is planned.

For late registration, contact registration chairman Ken Corner at the Los Angeles City Bureau of Communications, Room M-10, City Hall, Los Angeles 12, Calif. His telephone is MAdison 4-5211, extension 588 — and Los Angeles area code is 213. Don't miss this conference if you can help it.

—jk

CH Showcase ...... from p. 15

LOOKOUT TOWER UNIT

A two-way unit especially designed for use in remote lookout tower communications has been announced by *Motorola, Inc.*, Chicago, Ill.

The new unit, designated the "FM Lookout", is fully transistorized and battery operated. It features 1.4 watts power output. Receiver sensitivity is 0.7 microvolts in the high band (136-174 Mc) and 0.35 volts in the low band (25-54 Mc).

A number of accessory features are available as well as the basic model. Operating power is 12 volts DC, either from a storage battery or (in emergencies) from a pack of four mercury cells.

Full specifications and data are available from the manufacturer at 4501 West Augusta, Chicago 51.

EXTEND THE RANGE of your portable TRANSCEIVERS

"SKYLINE 150" PORTABLE ANTENNA

The Skyline 150 tuneable high band band antenna is the first **gain** answer to portable operation. This is a unique end-fed half wave antenna complete with its own ground plane counter poise. This is a complete antenna system, not merely a "radiating rod." Thousands of these antennas are in daily use throughout the Northwest. The Skyline 150 mounts to SO239 standard coaxial type fittings. Installation time is at a minimum. Performance and durability are at a maximm.

Three models are available. Tuneable through (a) 140-150 megacycles, (b) 150-162 megacycles, (c) 162-174 megacycles.

An 18 inch end loaded whip for carrying cases is also available on special order.

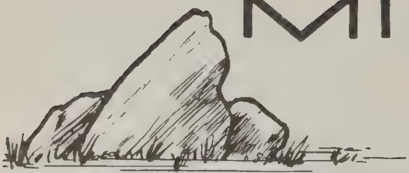
SKYLINE UNIVERSAL MOUNT

MOUNTS TO DECK, GUTTER OR MAST

Installation is quick, clean and simple. Moisture is locked out, performance is maintained even years after the initial installation.

Write for complete literature and prices on this new precision engineered high-band antenna.

PLAS TRON
CORPORATION
815 S.W. Viewpoint Drive
Portland 25, Oregon
Phone CApitol 7-7478



MILESTONES

PEOPLE, PLACES, AND THINGS IN THE NEWS

As usual, *people* made news in the non-broadcast world this month. An even dozen promotions and appointments crossed this desk.

Leading the list in numbers was *Motorola,* where three regional sales managers, a telephone market sales manager, and a radiotelephone communications representative were named.

The regional sales managers were Rhesa (Ray) S. Farmer, Ira Walker, and Henry Payne. Farmer, former Georgia zone manager, becomes top man in the Southern region. Walker is in the Southwestern region with headquarters at Houston. Payne, new West Coast regional manager in charge of Northern California and Nevada, operates from San Carlos, Calif.

Willard Ross, former Texas account executive, is the new telephone market sales manager in the Southwest, operating out of Dallas. Odus Lee Felts, former president and general manager of Centex Telephone Company, Mexia, Texas, is the new communications representative. He also operates from Dallas.

Other appointments announced this month include that of Lewis King as marketing research manager at *Centralab,* the Electronics Division of Globe-Union Inc. King, a graduate of the University of Tennessee, heads a newly enlarged department which is to study and evaluate changing market potential for both current and in-the-mill products of Centralab.

At *Dynascan Corporation* in Chicago — a new firm formed by merger of B&K Manufacturing Company and Mark Products Company—Robert M. Karet was named vice president in charge of sales. Karet had been sales manager of B&K prior to the merger. Also named at the same time were Bernard Golbus as sales manager, B&K Manufacturing division; Werner McKinsey, Jr., sales manager for Telemotive Division; and Milton Mann, sales and application engineering specialist for the B&K Division.

Jim Price, former vice president and general manager of Goddard-Orlando, was appointed sales manager and sales promotion manager for Globe Electronics and R M E Communications Divisions of *GC Electronics Company,* Rockford, Illinois. R M E was recently acquired by GC from *Electro-Voice.*

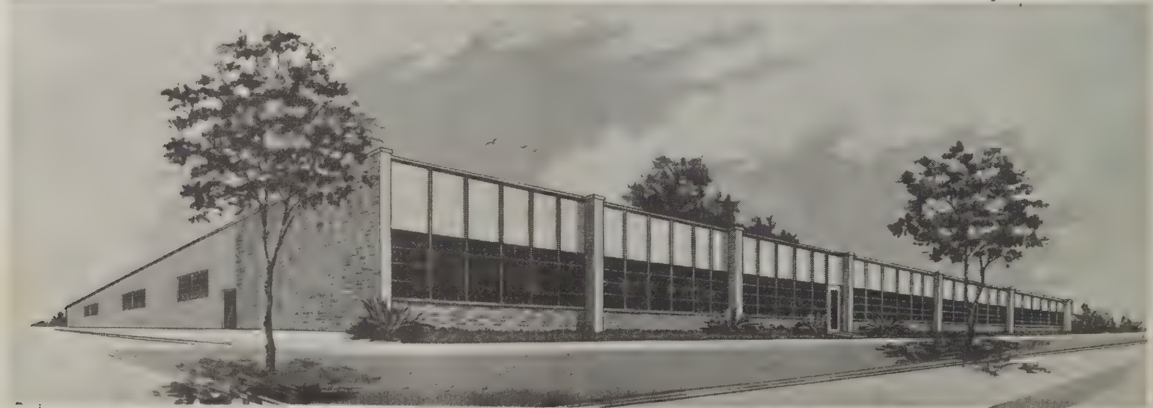
General Electric's Receiving Tube Department named Dan M. Wilson district sales manager in the Chicago area. He will handle sales to manufacturers of both entertainment and industrial equipment.

In the *places* category, Gardena, Calif., leads the list. There, a new firm has been formed to produce shielded ignition systems for motor vehicles. Headed by Stanley E. Estes, the firm is *Estes Engineering Company* and is located at 1639 West 135th Street in Gardena.

Estes said his product, Electro-Shield, is being promoted directly with automotive manufacturers and also through representatives. He is currently appointing reps over the nation.

In Lincoln, Nebraska, *Hy-Gain Antenna Products Company* moved into their new 25,000-square-foot plant at N.E. Highway 6 and Stevens Creek.

Hy-Gain president Andrew A. Andros said the new plant, which includes a complete plastics injection molding section as well as all the more-conventional antenna manufacturing equipment, will be "very helpful to us in maintaining our dedicated pledge of delivering to all of our customers the finest, most complete line of communications antennas available anywhere."



Artist's conception of new Hy-Gain Antenna plant

Postage
Will be Paid
by
Addressee

No
Postage Stamp
Necessary
if Mailed in the
United States

BUSINESS REPLY CARD

First Class Permit No. 223, Sec. 34.9, P. L. & R., Clifton, N. J.

ALLEN B. DU MONT LABORATORIES
Divisions of Fairchild Camera & Instrument Corp.
750 Bloomfield Avenue
Clifton, New Jersey

Att: Communications Department

FOR ACCURACY EXCEEDING FCC REQUIREMENTS

SEND FOR THE LATEST INFORMATION ON THESE TWO OUTSTANDING METERS...

Dear Sir:

Please send detailed information on:

☐ Du Mont FAIRCO MARK III Frequency Meter.

☐ Du Mont transistorized "FREQ" meter, Type 5980-B.

☐ Du Mont 2-way Radio Communications Systems.

Name________________Title________________

Firm________________________________

Address______________________________

________________Phone________________

FREQUENCY ACCURACY ZEROED IN

NEW! DUMONT

FAIRCO

MARK III
FREQUENCY METER

. . . a portable, low-cost, simply operated secondary frequency standard with accuracy exceeding FCC requirements! With one small unit you can now measure every frequency in the allocated FM spectrum—in central operations or in the field. A single cable connection allows exact adjustments of both transmitter and receiver in a matter of seconds. Settings are quickly and simply made for performance without error. A new "must" tool for 2-Way Radio service firms from the pioneer of communications. Write for details.

FEATURES

- Low price.
- Accuracy exceeding FCC requirements.
- Satisfies all allocated frequencies in FM band.
- Operates on 110 VAC, plus 6 or 12 VDC inverter.
- All circuits locked to a single temperature crystal standardized against WWV.

Price $650.00

the servicing do-all

TRANSISTORIZED "FREQ" METER

FEATURES

- 24 r-f/i-f channels and an audio signal in one, pint-sized package.
- 25 to 470 Mc spectrum plus i-f channels in the 100 kc to 100 Mc range.
- Defies obsolescence—permits addition of new channels.
- Signal generator output for receiver servicing.
- Checks adjacent—or split-channel gear with excellent precision.
- Compact, transistorized, long-life battery powered—requires no a-c connection.

The most versatile servicing tool in the industry—now a standard. Lightweight—8 pounds, rugged construction for portability. The ideal Freq Meter to perform functions such as: Carrier frequency error indication, relative transmitter field strength, modulation deviation measurement, receiver r-f alignment generator, aural monitor of modulated signal and many others. Write for details.

Price $435 with one RF Crystal

TYPE 5890 B

DU MONT®

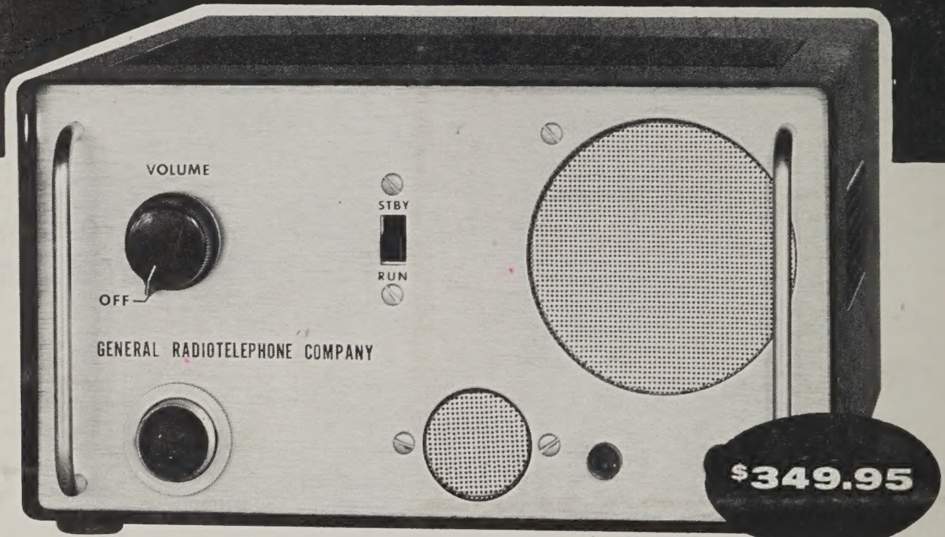
ALLEN B. DUMONT LABORATORIES
DIVISIONS OF
FAIRCHILD CAMERA & INSTRUMENT
CORPORATION
CLIFTON, N. J.

DU MONT REPRESENTATION FROM COAST TO COAST

NEW... A Superior "Years Ahead Design"
150-174MC FM TRANSCEIVER
That Costs Less!

General FM-60

For New Split Channel Requirements



The FM-60 Business Band Transceiver is the most competitive set available. The FM-60 now meets the complex demands placed upon modern business. This compact, rugged unit surpasses in quality, price and inclusive features any FM transceiver in operation today.

THE FM-60 is 60% efficient. This power ratio is unequaled in today's market.

THE FM-60, at $349.95, is up to 40% lower than competitive makes.

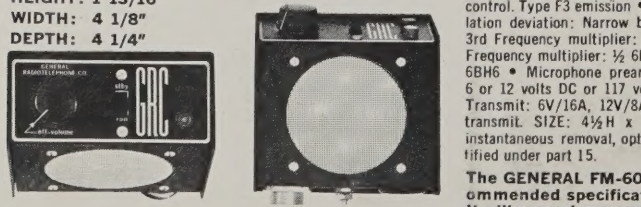
THE FM-60 has inclusive features that make for trouble-free, flexible two-way radio... hermetically sealed relays, nuvistor front end, fully automatic squelch, narrow band reception. Constructed for 6-12 or 115 volt input by merely changing the power cord. Handles are built-in to provide easy transport.

The FM-60 is a complete transmitting and receiving unit in itself. It may also be used with the RC-612 plug-in Remote Head.

MODEL RC-612 REMOTE CONTROL. The remote control, Model RC-612, is capable of controlling all functions of the FM-60, and contains a speaker; volume control with on-off switch; squelch control; battery saver switch, transmit and receive indicator lights; receptacle for microphone; 12 conductor remote cable with plug attached; mounting bracket.

Standard cable length is 17 feet, any length available on special order. **$49.95 NET**

HEIGHT: 1 13/16"
WIDTH: 4 1/8"
DEPTH: 4 1/4"



HIGHLIGHT SPECIFICATIONS: RECEIVER: Frequency Range: 150-174MC • Frequency Stability: .0005% temperature controlled • Squelch Sensitivity: .2uv or less • Attenuation of Spurious Response: Greater than 60 db • Receiver Sensitivity: .5 uv for 20db noise quieting • Intermediate Frequencies: 1st I.F. 11 MC 2nd I. F. 455KC • R.F. Amplifier: 6BS8 • 1st Mixer: 6CW4 • 1st and 2nd Oscillator: 6EA8 • 1st 455 KC I.F. Amplifier: 6BH6 • 2nd 455 KC I.F. Amplifier: 6BH6 • Limiter and Detector: 6BN6 • 1st Audio: ½ 6EB8 • Audio Amplifier: ½ 6EB8 • Noise Amplifier: ½ 6AW8 • TRANSMITTER: Frequency Stability: .0005% temperature controlled • Spurious and Harmonic Attenuation: Greater than 45 plus 10 Log 10 • R.F. Output Impedance: 50-74 ohms • R.F. Power output: 15 watts into 50 ohms • Modulation: FM (phase modulation) with direct crystal control. Type F3 emission • Modulation limiter: Automatic peak limiting • Modulation deviation: Narrow band (±5 KC) adjustable • Final amplifier: 6360 • 3rd Frequency multiplier: ½ 6360 • 2nd Frequency multiplier: ½ 6360 • 1st Frequency multiplier: ½ 6EA8 • Crystal Oscillator: ½ 6EA8 • Phase Modulator: 6BH6 • Microphone preamplifier: ½ 6AW8. POWER SUPPLY: Input voltages: 6 or 12 volts DC or 117 volts AC • Receive: 6V/9.4A, 12V/4.7A, 117V/60W • Transmit: 6V/16A, 12V/8A, 117V/100W • Duty cycle: Continuous, receive or transmit. SIZE: 4½H x 8 1/8W x 10½D. • Quick change "Snap-Rak" for instantaneous removal, optional. FCC type accepted, parts 10, 11, 16, 21, and certified under part 15.

The GENERAL FM-60, "Years Ahead Design," meets the recommended specifications established by the U.S. Government. It will exceed your expectations of what a trouble-free, reliable, low-cost FM Communications system can be. See for yourself!

Write for FREE complete specifications and Service Guide today. Dealer inquiries invited!

GENERAL RADIOTELEPHONE COMPANY
Dept. CH12
3501 West Burbank Boulevard, Burbank, California